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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/196,680	11/20/1998	STEPHEN J. MEYER	052250-5008	9428
26633	7590	11/02/2005		
HELLER EHRMAN WHITE & MCAULIFFE LLP 1717 RHODE ISLAND AVE, NW WASHINGTON, DC 20036-3001				
			EXAMINER KIM, CHRISTOPHER S	
			ART UNIT 3752	PAPER NUMBER

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/196,680	Applicant(s) MEYER ET AL.	
	Examiner Christopher S. Kim	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14, 15 and 20-63 is/are pending in the application.
- 4a) Of the above claim(s) 55-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-11, 14, 15, 20-54 and 62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 10, 2005 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-11, 14, 15, 20-54 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Tramm.

Fischer discloses a sprinkler comprising: a generally tubular body 30 having a central passageway 31, a closure 40, a trigger 44, a deflector 38; a face portion 76; a canopy portion 62; two frame arms 34; two support arms (no reference numbers); a single flow opening 79. Fischer teaches the use of a deflector 38 shaped and positioned to transform a horizontal flow of water into a spray pattern of droplets dispersed over a generally horizontal, rectangularly-shaped coverage area (see figures 1 and 6). The coverage area may be up to 16 ft x 24 ft (see column 3 lines 55-58).

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Tramm discloses, in column 5, lines 12-14, a horizontal-type fire protection sprinkler having a K-factor of at least 3.5, or at least 5.0, or at least 7.0, or at least 10.5, or at least 13.0. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided the sprinkler of Fischer with the range of K-factors (greater than 9) as taught by Tramm to provide a specific flow rate depending on pressure.

The device of Fischer in view of Tramm discloses the claimed limitation with the exception of the water flow rate and coverage area being at a height of only three feet below the canopy portion of the deflector. Fischer in view of Tramm discloses the structural limitations, K-factors including the relationship between flow rates and pressures, and the coverage area. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have positioned the sprinkler of Fischer in view of Tramm three feet above the coverage area to extinguish fires in three feet high compartments.

Fischer discloses the limitations of the claimed invention with the exception of the liquid filled glass bulb. Tramm discloses, pictorially, in figure 2, a liquid filled glass bulb 20. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have replaced the trigger of Fischer with the trigger (liquid filled glass bulb) of Tramm to eliminate the need for solder.

Fischer discloses, in column 3, lines 55-58, a coverage area of 16 ft x 24 ft (using a deflector comprising a generally planar face portion and a canopy portion, see figure 2). It would have been obvious to a person of ordinary skill in the art at the time the

invention was made that the coverage area is dependent on the fluid pressure, and therefore, any coverage area less than 16 ft x 24 ft can be attained by reducing the pressure (or increasing the K-factor which results in a lower pressure as defined by the formula in column 5, lines 30-38 of Tramm). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have adjusted the coverage area depending on the size of the room, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

The functional recitation "...and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty-six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet" merely recites the ability to so perform. The device of Fischer in view of Tramm discloses the structural limitations of applicant's claimed invention, and therefore, it too has the capability to so perform.

4. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Tramm, Pieczykolan (H121), and Bosio et al. (5,727,737).

Fischer discloses a sprinkler comprising: a generally tubular body 30 having a central passageway 31; a frame arms 34, a closure 40, a trigger 44, a deflector 38; a

face portion 76; a canopy portion 62. Fischer teaches the use of a deflector 38 shaped and positioned to transform a horizontal flow of water into a spray pattern of droplets dispersed over a generally horizontal, rectangularly-shaped coverage area (see figures 1 and 6). The coverage area may be up to 16 ft x 24 ft (see column 3 lines 55-58).

Fischer differs from what is being claimed in the trigger 44 being a liquid-filled glass bulb and the tubular body having a K factor greater than 9.

Regarding the liquid-filled glass bulb, Bosio teaches, in column 2, lines 38-33, that glass bulb containing heat-expandable liquid and fusible solder element are interchangeable. Pieczykolan teaches a spring washer and bulb design such that thinner walled and faster acting glass bulbs may be employed to ensure quicker release. See Pieczykolan column 3, lines 49-68. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided the sprinkler of Fischer with the bulb design of Pieczykolan to ensure quicker release.

Regarding the tubular body having a K factor greater than 9, Tramm discloses, in column 5, lines 12-14, a horizontal-type fire protection sprinkler having a K-factor of at least 3.5, or at least 5.0, or at least 7.0, or at least 10.5, or at least 13.0. Tramm further teaches, in column 5, lines 30-45, the relationship between flow rate and K factor and flow pressure. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have provided the sprinkler of Fischer with the range of K-factors (greater than 9) as taught by Tramm to provide a specific flow rate depending on pressure or to increase flow rate given a specific pressure.

Response to Arguments

5. Applicant's arguments filed August 10, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that Fischer does not have K-factor greater than 9, Tramm teaches the K-factor claimed.

Applicant argues that Tramm teaches a particular features of a deflector in Tramm that must be employed in order to utilize K-factors greater than 9 in a sidewall sprinkler. Examiner disagrees. Tramm teaches that K-factor is governed by

$$Q=K(p)^{1/2}$$

where:

Q = flow rate

K = K-factor

p = residual (flowing) pressure at the inlet to the sprinkler.

The K-factor is not dependant on the deflector as taught by Tramm. Tramm teaches that K-factor is merely a sizing of the outlet dependent on the flow rate and pressure.

Regarding the declaration of M. Fischer, Mr. Fischer's opinion has been considered. It should be noted that Mr. Fischer is employed by the Assignee of the present application. It appears that he is not a completely disinterested party.

Regarding applicant's functional recitations, the functional recitation merely requires the ability to so perform. Since the prior art discloses the structural recitations of the claimed invention, as identified above, it to must have the ability to so perform.

Additionally, some of the functional recitation is conditional, e.g. "...when the sidewall fire sprinkler is paired with an identical sidewall fires sprinkler..."


Finally, applicant argues that one would not be motivated to modify Fischer per the teachings of Tramm. Tramm provides the motivation in column 5, lines 44-56. Tramm discloses that "the area to be protected by the sprinkler, and the minimum flow rate of fluid to be discharged by the sprinkler, as well as allowable locations and distances between sprinklers are specifically prescribed in installations standards such as the NFPA 13." He further discloses "the concept of this invention can be applied to horizontal-type sprinklers specially listed for other protection areas, minimum flow rates, and/or locations and distances between sprinklers when found suitable for such use by a listing organization acceptable to the authority having jurisdiction."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Kim whose telephone number is (571) 272-4905. The examiner can normally be reached on Monday - Thursday, 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on (571) 272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher S. Kim
Primary Examiner
Art Unit 3752

CK